

SECOND ANNUAL REPORT
BY THE U.S. ENVIRONMENTAL
PROTECTION AGENCY

ON

ADMINISTRATION OF THE OCEAN
DUMPING PERMIT PROGRAM

UNDER

The Marine Protection, Research, and
Sanctuaries Act of 1972, as Amended
(33 U.S.C. 1401)

Washington, D.C.
September 1974

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I. INTRODUCTION AND EXECUTIVE SUMMARY

In 1969 and 1970 considerable public concern was aroused by a number of incidents involving the ocean disposal of nerve gas and other warfare agents. This interest led to the preparation of a report by the Council on Environmental Quality (CEQ) which addressed the magnitude and nature of the entire ocean dumping problem and proposed methods, both technological and legislative, to deal with it. At that time, prior to passage of the Marine Protection, Research and Sanctuaries Act of 1972, responsibility for the control of ocean dumping from certain ports was largely vested in the U.S. Army Corps of Engineers (CE), and to a much lesser extent in the Atomic Energy Commission (AEC) and the U.S. Coast Guard. The responsibilities of the Federal Water Pollution Control Administration, though substantial, were geared to continuous discharges and to a different and narrower geographic area.

CEQ's recommendations were to enact new legislation to:

- establish a permit system for ocean dumping based on environmental effects;
- broaden the geographic coverage; and
- vest responsibility in an agency oriented toward environmental considerations.

These recommendations were embodied in the Marine Protection, Research and Sanctuaries Act. The Federal Water Pollution Control Act (FWPCA) Amendments of 1972 also regulates the disposal of material into the marine environment by requiring the promulgation of criteria to prevent degradation of the marine environment (Section 403) and their required application in the issuance of permits for outfall disposal. The language of the criteria as presented in the two laws is slightly different, as is their arrangement. The basic thrust intended by the Congress is clear, however. Appendix 1 compares the similarities and differences in the two laws insofar as ocean disposal and ocean dumping are concerned.

During this same period international negotiations for the development of an international treaty to regulate the dumping of wastes in the marine environment were being conducted. In December 1972, the United States signed the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and the Senate gave its consent to ratification of the Convention in August, 1973. There were some minor inconsistencies between the Treaty, commonly called the International Ocean Dumping Convention, and the domestic legislation which were rectified by the passage of PL 93-254 on March 22, 1974.

In its passage of these laws and in ratification of the Treaty, the Congress made the national commitment for the protection of the ocean, as well as inland and near-coastal waters.

It was apparent that the Congress took the view that protection of the marine environment was of immediate concern in requiring that criteria be developed based on the presently known impact of waste materials on the oceans. At that time, however, only 10 of the 200 dumping sites in use had ever been studied in any respect, and most of the other considerable ocean research had been directed toward primarily theoretical oceanographic problems and phenomena. As a consequence of this, there is a great dearth of knowledge on the impact of wastes, a condition which must be rectified at the same time the permit program is in operation. The Environmental Protection Agency's (EPA) efforts to meet its responsibilities under the Act are therefore undertaken with the realization that modifications of the various program aspects can be expected in the future.

The Marine Protection, Research and Sanctuaries Act, as amended prohibits the dumping of high-level radioactive wastes and all biological, chemical, and radiological warfare agents into the oceans. The dumping of other wastes except dredged materials is to be strictly regulated by the Environmental Protection Agency. The goal has been the regulation of all ocean dumping in such a manner as to prevent any permanent damage to the marine environment at any dump site and to allow only temporary minor perturbations during actual dumping operation.

The general approach was to establish interim procedures and criteria for the issuance or denial of permits on a general basis and then to promulgate final regulations and criteria as rapidly as circumstances permitted. These were promulgated October 15, 1973.

The long-range strategy for the program envisions sequential steps based on the achievement of intermediate operational goals. This strategy is summarized in Exhibit A. Briefly, the steps include the following:

First, efforts were aimed at the development of procedures for the issuance or denial of ocean dumping permits. EPA published interim procedures on April 5, 1973. These included, as an interim measure, a shortened period for public notice and hearings. The final regulations, published October 15, 1973, were based on initial operating experience with the program and on public comment on the interim regulations. Some additional modifications will be made in the future as additional operating experience is gained.

Second, EPA has published criteria which established the basis upon which permits are issued or denied. These include quantitative

EXHIBIT A

OCEAN DUMPING PROGRAM SCHEDULE

CONTROL LEVEL I CONTROL LEVEL II CONTROL LEVEL III CONTROL LEVEL IV CONTROL LEVEL V

| Beginning Date | Spring 1973 | Fall 1973 | Winter 1975 | Summer 1977 | Summer 1983 |
|--|---|--|---|---|--|
| Procedures for Issuing or Denying Permits | Interim; Shortened Time for Public Notice | Final Regulations | | | |
| Criteria for Evaluating Permit Applications | Interim; Laboratory Methods Acceptable to Regions | Final General Criteria; Interim Laboratory Methods Manual in Use | Criteria Made Specific for Different Wastes; Final Laboratory Methods Manual in Use | Final Criteria and Laboratory Methods | |
| Selection and Designation of Disposal Sites | Interim Designation of Sites Already in Use | Begin Trend Assessment and Baseline Surveys; Interim Sites in Use | Initial Site Designations Made Based on Environmental Impact Statements | Site Designations Changed as Required Based on Updated FIS's | |
| Implementation of Plans by Permittees to Meet Criteria for Ocean Dumping | All Permittees Examine Alternatives | Interim Permittees Develop and Implement Required Plans; Do Research on their Waste's Impact on Marine Environment | | All Permittees Using Best Practicable Treatment of Wastes Dumped Under Permit | Best Available Technology Applied to All Wastes Ocean Dumped |
| Surveillance and Enforcement | Surveillance and Enforcement Procedures Fully Operational | | | | |

criteria concerning allowable concentrations of certain materials and analytical tests from which the probable impact of the waste materials on the environment may be determined.

General requirements for all wastes are based on the best available scientific knowledge at the time of publication. The criteria allow only a 50 percent increase over normal background concentrations of mercury and cadmium in the part of the dumpsite immediately affected by the dumping and an average concentration in the mixing zone of no more than one percent of the waste concentration known to be toxic to sensitive marine organisms.

The ultimate goal in developing criteria for the evaluation of ocean dumping permits is to establish specific criteria for some wastes and adequate general criteria for others. The needed research strategy has been developed in consultation with the National Oceanic and Atmospheric Administration (NOAA), the Corps of Engineers, the Coast Guard, the Navy, the National Science Foundation, and EPA. Exhibit B summarizes the milestones of this strategy.

The third step in the long-range strategy for the ocean dumping program is the designation of dumping sites. As part of the publication of initial regulations and criteria the sites then in use for ocean dumping were approved on an interim basis. These designations will continue until each site has been adequately surveyed and a determination made as to whether its use should be allowed or terminated.

Environmentally acceptable sites for disposal will be announced in the Federal Register and will be supported by environmental impact statements. Site designations are to be completed as rapidly as possible along with annual up-dates on all other previously surveyed sites.

At the inception of the program a number of municipalities and industries were dumping wastes which were toxic or otherwise unacceptable for ocean disposal. The phasing out of these activities is being implemented on a case-by-case basis. Lack of immediately available alternatives has necessitated this phased approach.

Surveillance of dumping and enforcement of permit conditions during actual dumping operations are being accomplished through the efforts of the Coast Guard. All violations of permit conditions and illegal dumping reported to EPA are subject to enforcement action through the assessment of civil penalties and, where necessary, criminal proceedings. The Coast Guard has reported some 30 apparent violations, four formal enforcement proceedings have become necessary. In other instances, the "violations" resulted from very minor

navigational errors, misunderstandings on the terms of the permit, or the fact that the dumpers were operating under previously existing Corps of Engineers permits.

Interagency coordination is being achieved by an interagency Committee composed of EPA, NOAA, the Coast Guard, CEQ, and the Corps of Engineers. This Committee's purpose is to provide overall program coordination. Programs have been initiated by the agencies with research capabilities which will contribute to the objectives of the ocean disposal research program. Both NOAA and EPA are working toward the development of baseline and trend assessment surveys on a continuing basis. The Corps of Engineers has underway a five-year dredged material research program which will provide EPA with the baseline data necessary to evaluate dredged material disposal sites.

The needs of the permit program for continuing information on the health of the marine environment are only part of the total national need for data on the oceans. EPA and other agencies are also actively participating in the development of a national marine monitoring plan through an Interagency Committee on Marine Environmental Prediction (ICMAREP) subgroup, the Subcommittee on Marine Environmental Baselines and Monitoring (SC/MBM).

Despite the lack of precise scientific data concerning the impact of most pollutants on the ocean environment, the permit program is moving ahead. All ocean dumping is now closely controlled. This means that only those dumping activities which meet environmentally protective criteria or which are a part of an implementation schedule leading toward compliance with such criteria are now permitted. Most significantly, the option of uncontrolled dumping is no longer available. Many materials which were once discarded to the detriment of the oceans are now being reclaimed for new beneficial uses. At the same time we are gathering scientific information and data with respect to the interaction of pollutants and the ocean environment.

The permit program has been underway for a year. In that year criteria have been developed for the evaluation of permit applications, procedural regulations have been prepared on an interim basis, some 110 ocean disposal sites have been identified, about 160 permit applications have been considered, and 55 permits have been issued. About 70 additional permits have been denied, withdrawn, or placed on compliance schedules to end or sharply reduce the amount of waste being dumped. The remainder are pending. Tonnages being disposed of by ocean dumping are summarized in Exhibit C.

Exhibit B

KEY RESEARCH MILESTONES FOR DEVELOPING
CRITERIA FOR THE EVALUATION OF
OCEAN DUMPING PERMITS

- | | |
|-------------|---|
| Winter 1974 | - Draft Interim Analytical Methods Manual for the Ocean Disposal Permit Program distributed to the Regions |
| Summer 1974 | - Conduct Workshop to Assess Status of Marine Bioassay Techniques |
| Fall 1974 | - Publish Report on Improved Marine Bioassay Techniques |
| Summer 1975 | - Revised Draft Interim Analytical Methods Manual for the Ocean Disposal Permit Program Incorporating Sampling Procedures Prepared by NOAA. |
| Summer 1975 | - Recommendations Available from Office of Research and Development on Revision of Criteria. |
| Winter 1975 | - Issuance of Final Methods Manual. |

Ironically, the major problem in the future is anticipated to be increased pressure to dispose of wastes in the ocean which result from more and better waste treatment facilities removing increased amounts of wastes from both municipal and industrial waste streams. Therefore, EPA's implementation of the marine protection program called for in the legislation is designed to take into consideration the entire ecosystem. A basic object, as the Congress obviously intended, is to find and use the least environmentally damaging site and method of disposing of each waste whether it involves land, air, or water. In some cases, barging of wastes for final disposal in the ocean provides, and must continue to provide, both the least damaging site and method.

Exhibit C

OCEAN DISPOSAL: TYPES AND AMOUNTS, 1973

(In tons, approx.)

| Waste type | Atlantic | Gulf | Pacific | Total |
|---------------------------------------|------------|-----------|---------|------------|
| Industrial waste | 3,997,100 | 1,408,000 | 0 | 5,405,100 |
| Sewage sludge | 5,429,400 | 0 | 0 | 5,429,400 |
| Construction and demolition debris | 1,161,000 | 0 | 0 | 1,161,000 |
| Solid waste | 0 | 0 | 240 | 240 |
| Explosives | 0 | 0 | 0 | 0 |
| Total | 10,587,500 | 1,408,000 | 240 | 11,995,740 |

II. STATUTORY AUTHORITIES.

The Marine Protection, Research, and Sanctuaries Act, as amended, commonly called the Ocean Dumping Act, absolutely prohibits the dumping of high-level radioactive wastes and all biological, chemical and radiological warfare agents in the ocean. The dumping of all other wastes except dredged material is to be strictly regulated by EPA. The basis for regulation is given in the form of general criteria which require the Environmental Protection Agency (EPA) to balance the following factors in coming to a determination whether to issue or deny a permit:

1. The need for the proposed dumping, as determined by EPA.
2. The effect of the dumping on the marine environment.
3. Social and economic considerations involving the dumping, including effects on health and welfare, fishery resources, recreational values, etc.
4. Alternate means of disposal, including alternate methods of treatment, land-based disposal, and recycling.
5. The feasibility of dumping beyond the continental shelf.

These same criteria apply to the issuance of permits under Sections 402 and 403 of the Federal Water Pollution Control Act, as amended for outfall discharges into the ocean.

To carry out this responsibility the Administrator of EPA is authorized to promulgate regulations, designate areas where ocean dumping may be permitted, and designate critical areas where dumping is prohibited. EPA must also give public notice and allow opportunity for public hearing before any permit is issued.

Dredged material may be dumped by the U.S. Army Corps of Engineers after the proposed permit has been reviewed and agreed upon by EPA. In issuing such permits the Corps is required to use EPA-designated sites wherever feasible, but the Corps may use other sites if:

- 1) they determine that disposal at the EPA sites is not economically feasible, and
- 2) EPA makes the determination that such disposal will not have an unacceptable adverse effect on the environment.

Surveillance of dumping operations to ensure that permit conditions are met is assigned to the U.S. Coast Guard. EPA, however, has the authority to assess civil penalties for violation of permit conditions. There is also a provision for criminal action.

Title II of the Act requires the National Oceanic and Atmospheric Administration (NOAA) to support the permit program by initiating a comprehensive program of research and monitoring to determine the overall effects of man's activities on the marine environment. Title III gives to NOAA authority to establish marine sanctuaries.

III. GENERAL PROGRAM APPROACH.

The Act required full implementation of the ocean dumping permit program six months after enactment. Permitting criteria were developed utilizing existing and somewhat inadequate scientific knowledge and technical expertise in ocean dumping management, and all ocean dumping came under strict regulation by the statutory effective date (April 23, 1973).

Interim procedures and criteria were established for issuance or denial of permits on a general basis and final regulations and criteria were promulgated as rapidly as circumstances permitted with anticipation that major modifications would be desirable as experience was gained and scientific knowledge expanded. The long-range strategy for the program includes five sequential levels of control based upon projected dates for the achievement of intermediate operational goals. These are summarized in Exhibit 1 and are discussed here in terms of the five operational activities shown in that Exhibit.

1. Procedures for the Issuance or Denial of Ocean Dumping Permits.

Administrative mechanisms for receiving and reviewing permit applications, for conducting public hearings, and for actions taken in regard to applications are needed to provide for equitable handling of applications. Such procedures must provide a balance between the expeditious processing of applications and the need for adequate internal and external review by all interested parties.

Interim procedures for issuing or denying permits were promulgated on April 5, 1973. These included, as an interim measure, a shortened period for public notice and hearing. The final regulations were published October 15, 1973, and were based on initial operating experience with the program and on public comment on the interim regulations. As in the technical aspects of the program, additional modifications will be made in the future, although the regulations are substantively final in their present form.

2. Criteria for the Evaluation of Permit Applications.

Underlying these procedures, however, are the criteria on which permitting, administrative procedure, and enforcement are based. There must be published criteria which establish the basis upon which permits will be issued or denied. These must include quantitative criteria concerning allowable concentrations of certain materials and analytical tests or other procedures by which the probable impact of the waste materials on the environment may be determined.

EXHIBIT 1

OCEAN DUMPING PROGRAM SCHEDULE

CONTROL LEVEL I CONTROL LEVEL II CONTROL LEVEL III CONTROL LEVEL IV CONTROL LEVEL V

| Beginning Date | Spring 1973 | Fall 1973 | Winter 1975 | Summer 1977 | Summer 1983 |
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| Evaluation and Designation of Disposal Sites | Interim: Designation of Sites Already in Use | Begin Trend Assessment and Baseline Surveys; Interim Sites in Use | Initial Site Designations Made Based on Environmental Impact Statements | Site Designations Changed as Required Based on Updated EIS's | |
| Implementation of Plans by Permittees to Meet Criteria for Ocean Dumping | All Permittees Examine Alternatives | Interim Permittees Develop and Implement Required Plans; Do Research on their Waste's Impact on Marine Environment | | All Permittees Using Best Practicable Treatment of Wastes Dumped Under Permit | Best Available Technology Applied to All Wastes Ocean Dumped |
| Surveillance and Enforcement | Surveillance and Enforcement Procedures Fully Operational | | | | |

When the initial efforts were being made to develop criteria under which disposal of wastes to the marine environment could be permitted, knowledge was too incomplete regarding the impact of specific wastes on marine ecosystems to establish a regulatory base of quantitative criteria for each type of waste or even for sufficiently general definitive parameters of impact. Little is known about ambient concentrations of other than major constituents of seawater, or the natural variability of these constituents in coastal or oceanic waters.

Another area of concern is the toxicity of wastes to specific marine organisms, both on an acute and on a chronic basis. Rates of bioaccumulation for some materials for some organisms are known, but there is almost no information available on the ambient levels permissible for bioaccumulative toxic materials.

As a result of the general inability to predict the effects of wastes on the marine environment, general criteria were developed to cover any reasonable conceivable situations involving the impacts of the disposition of wastes into the marine environment. Also, in developing such criteria it was necessary to recognize the fact that there were little actual data on the ocean itself and that at least part of the basis for the criteria must rest upon analogy to conditions in the freshwater environment.

For the criteria to serve a reasonable basis for the issuance or denial of permits for ocean disposal, they must meet these requirements:

1. They must be fully responsive to the statutes governing regulation of ocean dumping and other waste disposal to the marine environment.
2. They must be quantitative to the greatest degree possible within the present state of knowledge.
3. They must be enforceable.
4. They must be consistent with present scientific knowledge and theory. For each type of waste regulated a rationale was developed in response to Section 102(a)(B, C, D, E, & F) that would set limits for waste disposal which would assure that the waste could be dumped safely into the marine environment without damage to the marine environment, or to human health, welfare, social, economic, esthetic or recreational values. Allowable concentrations of pollutants specified in the regulations are:

Mercury and its Compounds Cadmium and its Compounds

An increase of no more than 50 percent above normal ambient oceanic values is permitted in the mixing zone. That is, if the ambient concentration of mercury is four parts per million, no more than six parts per million is allowed to be present in the mixing zone for more than four hours after completion of the dump.

Organohalogenes

The waste may contain no more than 1 percent of the 96-hour TLm (that concentration which kills one-half of all organisms being tested within 96 hours) for any organohalogen; in the mixing zone, then, no more than 1/10,000 of the TLm value will be permitted.

Oils and Greases

The upper limit is that amount which will give a visible sheen when mixed in a ratio of 1/100 with undisturbed water.

General Toxicity of Mixed Wastes

The upper limit is 1 percent of the TLm or other acute toxic level in the mixing zone. The 1 percent application factor is generally regarded as a safe limit to use when specific toxicity values are not known.

Other specific requirements for other wastes are stipulated in the published regulations including arsenic, lead, copper, zinc, vanadium, organosilicones, inorganic processing wastes such as cyanides and fluorides, petro and organic chemicals such as aliphatic solvents and phenols, and biocides, as well as many other potentially harmful substances.

Within this administrative and technical framework, then, the program is moving forward with deliberate speed.

Interim criteria were published May 16, 1973, modified as a result of public comment, and were republished as final criteria October 15, 1973. These are general requirements for all wastes and are based on the best available scientific knowledge at the time of publication. The results of research now underway by EPA, NOAA and others should provide a data base upon which to revise these criteria. It is also necessary to develop a series of standardized procedures and techniques to ensure that all wastes are tested to known degrees of accuracy.

A research strategy to accomplish this has been developed in consultation with EPA, NOAA, the Corps of Engineers, the Coast Guard, the Navy, and the National Science Foundation. The ultimate goal in developing criteria for the evaluation of ocean dumping permits is to establish specific criteria for some wastes and adequate general criteria for others. Key milestones for achieving this goal are as follows:

- | | |
|-------------|---|
| Winter 1974 | - Draft Interim Analytical Methods Manual for the Ocean Disposal Permit Program (distributed to EPA Regions). |
| Summer 1974 | - Conduct Workshop to Assess Status of Marine Bioassay Techniques |
| Fall 1974 | - Publish Report on Improved Marine Bioassay Techniques |
| Summer 1975 | - Revised Draft Interim Analytical Methods Manual for the Ocean Disposal Permit Program Available Incorporating Sampling Procedures Prepared by NOAA. |
| Summer 1975 | - Recommendations Available from Office of Research and Development on revision of criteria. |
| Winter 1975 | - Issuance of Final Methods Manual |

3. Designation of Dumping Sites.

Administrative procedures for the designation of dumping sites must be promulgated and the technical criteria for approval and disapproval must be defined. Specific requirements for baseline surveys must be established and the mechanism for accomplishing such surveys must be developed and implemented.

In the absence of reasonably complete knowledge concerning the effect on the marine ecosystem of many wastes, sites in use for ocean dumping were approved on an interim basis. This interim designation ordinarily will continue until each site has been adequately surveyed and a determination made as to whether to continue its use. Exception may be made where wastes are considered to have minimal impact and the opportunity exists for moving the site seaward beyond the continental shelf (as noted in the Act). Regulations for the designation and management of ocean dumping sites are being developed and will include the requirements for baseline and trend assessment surveys. An interagency agreement concerning such surveys is being developed with NOAA. EPA is also mounting supplementary surveys.

As studies progress environmentally acceptable sites will be approved through promulgation in the Federal Register. Each designation will be supported by an environmental impact statement. Environmental impact statements for sites for the disposal of unpolluted dredged material will be based on one-year monitoring programs of typical sites now being conducted by the Corps of Engineers. The schedule for accomplishment of site designations is as follows:

- | | |
|-------------|--|
| Spring 1975 | - First site designation environmental impact statement prepared (two interim dump sites in Region III). |
| Summer 1975 | - First group of site designations completed. |
| Winter 1975 | - Second group of site designations completed. |
| Summer 1976 | - Third group of site designations completed plus annual updates on all other site designations. |

As well as providing the necessary technical base for the ocean dumping activity, the program of baseline and trend assessment sur-

veys, plus monitoring requirements imposed on dumpers, will form part of an overall marine monitoring program by Federal agencies with program missions in the marine environment. An interagency plan for the coordination of activities and type of participation by each agency is now in draft form and will soon be circulated among the participating agencies for formal approval.

4. Surveillance and Enforcement.

An effective mechanism for surveillance of dumping operations is required to ensure that permit conditions are met and that illegal dumping is difficult to do without being caught. Violations of permit conditions and illegal dumping reported to EPA must be subject to vigorous enforcement action through the assessment of civil penalties and, where necessary, by instituting criminal proceedings.

The Coast Guard is informed routinely of each dumping operation and conducts surveillance to the extent that their resources allow. Four formal enforcement actions have been taken based on some thirty Coast Guard notifications to EPA regions of apparent violations. In other instances, the "violations" resulted from very minor navigational errors, misunderstandings on the terms of the permit, or the fact that the dumpers were operating under previously existing Corps of Engineers permits.

While some minor modifications of procedures may be made in the future, no substantive changes seem to be necessary at present. The Coast Guard is also exploring the use of automatic surveillance devices as well as dumpsite marking techniques.

IV. PRESENT OPERATIONAL MECHANISMS AND PROCEDURES

Types of wastes proposed for disposal in the ocean vary over a very wide spectrum necessitating a variety of types of permits. Exhibit 2 briefly describes the types of permits now available.

The authority to issue or deny special and interim permits, set permit conditions, and modify or revoke them, has been delegated to the Regional Administrators of EPA's ten regions. The authority to issue or deny emergency permits, general permits, and research permits has been retained by the Administrator. In addition, EPA Headquarters is responsible for overall coordination of the program and the promulgation of all regulations, including disposal site designations. Environmental assessments will be prepared in regional offices, and released by the Administrator as part of the disposal site designation procedure.

The following coordination mechanisms have been established:

1. An interagency committee for overall program coordination, consisting of EPA, NOAA, the Corps of Engineers, and the Coast Guard. In practice most coordination is done on a bilateral basis, and the entire committee meets only when there are substantive issues affecting more than one program.

2. An intra-agency coordinating committee. The membership of this committee is the same that made up the working group which developed the regulations and criteria. Overall programmatic issues other than regulations are frequently resolved at the periodic meetings.

3. General marine monitoring plans are coordinated through the Interagency Committee on Marine Environmental Prediction and its Subcommittee on Marine Environmental Baselines and Monitoring, which is chaired by EPA. This Subcommittee meets on an intermittent basis and is developing a national marine monitoring plan which involves all Federal agencies with missions in the marine environment.

4. A special interagency committee on ocean dumping research has been formed among EPA, NOAA, the Coast Guard, the Corps of Engineers, the Navy, and the National Science Foundation (NSF) to coordinate research activities. This group has participated in developing the program's research strategy.

The major present operational activity of the program is in the procedures for the processing of permit applications. This activity is as follows:

EXHIBIT 2

TYPES OF OCEAN DUMPING PERMITS

| <u>Permit Type</u> | <u>Restrictions and Use</u> | <u>Time Limit</u> |
|--------------------|---|-------------------|
| Special* | <ul style="list-style-type: none"> -Material must meet "limiting permissible concentration" criteria for no adverse impact. -Ocean dumping must be most environmentally acceptable alternative. -Need to dump must exist. | 3 years |
| Interim* | <ul style="list-style-type: none"> -Materials exceed "limiting permissible concentration" or "trace contaminant" criteria. -Dumper must develop and implement acceptable schedule to improve waste quality to meet the criteria, or eliminate discharge entirely. | 1 year |
| Emergency* | <ul style="list-style-type: none"> -Individual cases where an emergency is demonstrated to exist posing an unacceptable risk to human health. -Cases which admit of no other feasible solution. -Requires State Department coordination. | Single use |
| Research* | <ul style="list-style-type: none"> -Materials not prohibited by law or regulation dumped for purposes of investigation or research into the impact of pollutants on the marine environment. | 18 months |
| General | <ul style="list-style-type: none"> -Materials of non-toxic nature in small quantities. | Indefinite |

*May require a public hearing.

| <u>Permit Type</u> | <u>Restrictions and Use</u> | <u>Time Limit</u> |
|----------------------|--|-------------------|
| Dredged Materials | <ul style="list-style-type: none"> -Materials removed from water bodies by the Corps of Engineers in the course of carrying out assigned functions and missions. -Must be reviewed by and receive concurrence from the EPA Regional Administrator from whose region the waste is transported for disposal. | Case-by-case |

1. After receipt of a completed application, the EPA regional office makes a technical evaluation of the application, which includes evaluation of the following factors:

a. Alternatives to dumping based on the review of the regional staff.

b. Impact of the waste on the marine environment based on the published criteria.

c. Need for the dumping.

d. Social and economic consequences of ocean dumping and the alternative methods of disposal.

2. Based on this evaluation a tentative determination to issue or deny the permit is made and public notice is given of the tentative determination.

3. A public hearing is held at public request or at the discretion of the Regional Administrator.

4. The Regional Administrator issues or denies the permit.

Procedures for the implementation of the monitoring program, including baseline and trend assessment surveys, are now being developed. These procedures in their present form assign management of ocean disposal sites to EPA Regional Administrators and make them responsible for the preparation of environmental assessments (based on baseline and trend assessment surveys) on each site designation. The Environmental Impact Statements (EIS) themselves will be prepared by EPA headquarters (by contract) and released as part of the site designation procedure.

V. OCEAN DUMPING PERMIT PROGRAM STATUS.

Final regulations and criteria for the issuance of permits were published October 15, 1973. All permits issued under the interim regulations published in April, 1973, were terminated as of April 15, 1974, and all permits now in force were issued under the final regulations and criteria. These and other key dates are noted in Exhibit 3.

Except for minor or one-time dumps, examples of which are shown with related material in Exhibit 4, all dumping of municipal sewage sludge originates in the New York and Philadelphia metropolitan areas. The total volume of these municipal sewage sludges is almost equal to the volume of all other materials dumped. All dumpers of sewage sludge are operating under interim permits while developing and implementing plans to make their waste harmless or to cease ocean dumping. Exhibit 5 summarizes the volumes of both municipal and industrial wastes dumped in 1973 and compares them with the volumes dumped in 1968.

Exhibit 3

KEY DATES IN THE OCEAN DUMPING PROGRAM

| | |
|------------------|--|
| October 23, 1972 | - Passage of PL 92-532 |
| April 23, 1973 | - Effective Date of Act First Permits Issued |
| March 22, 1974 | - Amendments to PL 92-532 Passed |
| * * * * * | |
| April 5, 1973 | - Interim Regulations Published |
| May 16, 1973 | - Interim Criteria Published |
| October 18, 1973 | - First Annual Report Transmitted |
| October 15, 1973 | - Final Regulations & Criteria Published |
| April 15, 1974 | - Termination of All Permits Issued Under Interim Regulations |

EXHIBIT 4

EXAMPLES OF MINOR OR ONE TIME

| <u>Permittee</u> | <u>Date of Issuance</u> | <u>Type of Waste</u> | <u>Amount of Waste</u> | <u>Location of Dumping</u> | <u>Duration</u> |
|---|-------------------------|---|-------------------------------------|--|---------------------|
| 1. U.S. Army Corps of Engineers | 07-15-73 | Derelict wooden barge "Comet" | 250'x40'x12' | 42°25.5'N, 70°35'W | One-time dump |
| 2. Safety Projects, Inc. 3 Malden Street West Quincy, Massachusetts | 06-27-73 | 10,000 lbs. sodium 300 lbs. lithium 300 lbs. potassium | | 42°25.5'N, 70°35'W | One-time dump |
| 3. A&S Transportation Company 75 Jacobus Avenue Kearny, New Jersey (for Stamford, Connecticut) | 10-12-73 | Primary sewage sludge | 9,400 tons | 110-mile toxic waste dumping ground, Region II | One-time dump |
| 4. Safety Projects, Inc. 3 Malden Street West Quincy, Massachusetts | 11-20-73 | Miscellaneous laboratory reagents & chemical waste, contaminated laboratory equipment | 5,500 gal./yr. | 42°25.5'N, 70°35'W | 11-15-74 |
| 5. Fairhaven Marine, Inc. P. O. Box 188 Fairhaven, Massachusetts | Pending | Derelict wooden ship "Conquest" | 114 tons | | One-time dump |
| 6. Pine State By-Products, Inc. Front Street South Portland, Maine | 04-04-74 | Water from washing down plant containing 1/2% fish & poultry by-products | 7,000 gal./day 2.55 mil.gal./yr. | 43°32'45"N, 69°55'W | Expiration 01-31-75 |
| 7. Pfizer Chemical Groton, Connecticut | Pending | Mycelium | 1,200 tons/wk. | | |
| 8. McKie South Boston, Massachusetts | 04-27-74 | Steel filings | 3,400 tons | 42°25.5'N, 70°35'W | 05-20-74 |

| <u>Permittee</u> | <u>Date of Issuance</u> | <u>Type of Waste</u> | <u>Amount of Waste</u> | <u>Location of Dumping</u> | <u>Duration</u> |
|--|-------------------------|---|------------------------|----------------------------|---------------------|
| 9. Plantation of Monhegan Island | Pending | Table scraps, bottles, etc. June-September | 800 #/day | | |
| 10. U.S. Army Corps of Engineers 424 Trapelo Road Waltham, Massachusetts | Land alter-native found | Derelict ship Effortless I & II | | | |
| 11. Stamford, Connecticut | Pending | Primary sewage sludge | 7 mil.gal./yr. | Sewer sludge ground | Asking for one year |
| 12. Harbor Development Commission New Bedford, Massachusetts | Pending | Wooden barge | 500 tons | | One-time dump |

OCEAN DISPOSAL; TYPES AND AMOUNTS, 1968* AND 1973**

(IN TONS, APPROX.)

| WASTE TYPE | ATLANTIC | | GULF | | PACIFIC | | TOTAL | |
|------------------------------------|-----------|------------|---------|-----------|-----------|------|-----------|------------|
| | 1968 | 1973 | 1968 | 1973 | 1968 | 1973 | 1968 | 1973 |
| Industrial Waste | 3,013,200 | 3,997,100 | 696,000 | 1,408,000 | 981,300 | 0 | 4,690,500 | 5,405,100 |
| Sewage Sludge | 4,477,000 | 5,429,400 | 0 | 0 | 0 | 0 | 4,477,000 | 5,429,400 |
| Construction and Demolition Debris | 574,000 | 1,161,000 | 0 | 0 | 0 | 0 | 574,000 | 1,161,000 |
| Solid Waste | 0 | 0 | 0 | 0 | 26,000 | 240 | 26,000 | 240 |
| Explosives | 15,200 | 0 | 0 | 0 | 0 | 0 | 15,200 | 0 |
| TOTAL | 8,079,400 | 10,587,500 | 696,000 | 1,408,000 | 1,007,300 | 240 | 9,782,700 | 11,995,740 |

* 1968 Source - Council on Environmental Quality, Ocean Dumping - A National Policy, October, 1970.

** 1973 Source - EPA Regional Offices. Unpublished Reports, 1973 (8 months of dumping activity-- May to December 1973 under permits issued by Ocean Disposal Program extrapolated for 12 months to provide an annual rate).

Some 44 million cubic yards of dredged material were dumped into the ocean during 1973 under authority of the Corps of Engineers. Of this volume, only 2,800,000 cubic yards were dumped under permit (almost all from New York and Philadelphia); the remainder was dumped by the Corps of Engineers itself under conditions not requiring EPA permitting. Exhibit 6 summarizes dredged material volumes dumped in 1973.

Of the total of 163 permit applications received, 72 represented wastes, primarily industrial, of a nature unacceptable for ocean dumping. Appendix 2 lists these applications and permits according to the disposition made.

Eleven ocean dumping sites are now in active use for municipal and industrial wastes; four are beyond the continental shelf. Site surveys are being conducted on three sites, and additional surveys will be initiated in the first quarter of FY 75. These surveys are designed to serve a two-fold purpose. The first is advancement of knowledge of the effects of disposal in the oceans of a variety of wastes which should result in improvement of criteria for ocean dumping; the second is formation of the basis for environmental impact statements to be prepared for each dumping site designated on other than an interim basis.

These studies are being supplemented by EPA research activities including conducting investigations into ecological processes and effects of ocean dumping.

One principal activity, in the New York Bight region, is designed to study any changes in benthic community structure occurring as a result of digested sewage sludge contamination and the movement of sludge particles dumped from barges. Two mathematical models have been developed for this last purpose; one is a barge discharge dispersion model that predicts the movement of particulates through the water column, and the other is a circulation model for the New York Bight that can be used to predict pollutant concentration over time. Both models are being field validated as part of the New York Bight study. EPA regional and research staff are also studying and evaluating two dump sites, one industrial and one municipal, off Delaware Bay.

Other efforts are experiments designed to assess and measure contaminants (heavy metals, PCB's and hard pesticides) leaching from spoils and sludges under simulated field conditions, using appropriate analytical and bioassay techniques. Along with simulation and mathematical model studies, a field study is being performed with the object of coordinating and integrating laboratory studies with field measurements.

EXHIBIT 6

DREDGED MATERIAL DUMPED IN OCEAN - 1973

| | <u>Corps of Engrs.</u> (Cu. Yds.) | <u>Permits</u> (Cu. Yds.) | <u>Total</u> (Cu. Yds.) |
|-----------------------------------|--------------------------------------|------------------------------|----------------------------|
| New England Division | 1,611,000 | 453,000 | 2,064,000 |
| North Atlantic Division | | | |
| New York District | 9,764,000 | 2,054,000 | 11,818,000 |
| Philadelphia District | 416,000 | - | 416,000 |
| Norfolk District | 35,000 | - | 35,000 |
| South Atlantic Division | | | |
| Jacksonville District | 2,875,000 | - | 2,875,000 |
| Savannah District | 1,230,000 | - | 1,230,000 |
| Wilmington District | 2,501,000 | - | 2,501,000 |
| Charleston District | 1,159,000 | - | 1,159,000 |
| Lower Mississippi Valley Division | | | |
| New Orleans District | - | - | - |
| Southwestern Division | | | |
| Galveston District | 10,781,000 | - | 10,781,000 |
| North Pacific Division | | | |
| Portland District | 7,122,000 | - | 7,122,000 |
| Seattle District | 457,000 | - | 457,000 |
| Alaska District | 7,000 | - | 7,000 |
| South Pacific Division | | | |
| Los Angeles District | 3,500,000 | 226,000 | 3,726,000 |
| Pacific Ocean Division | - | 17,000 | 17,000 |
| | <hr/> | <hr/> | <hr/> |
| | 41,458,000 | 2,750,000 | 44,208,000 |

An interim analytical methods manual for the analysis of wastes and marine environmental samples has been completed. This manual is being used by EPA coastal regions in the operation of the ocean disposal permit program while further research is being carried out to develop and certify analytical methods specific to ocean dumping problems.

In addition, Coast Guard Research and Development is working on a positive recording navigation system which may alleviate a number of problems incurred in the ocean dumping surveillance program. These are principally related to navigation, i.e., dumping at night and lack of navigational equipment aboard transporting vessels. To date, the Coast Guard has seen no need to promulgate regulations on ocean disposal under the Act; however, they may do so in the future if necessary to resolve this navigational equipment problem and to implement adoption of a more positive navigation and surveillance system.

The Coast Guard's enforcement program is keyed to close surveillance of the disposal of toxic materials with spot-checks of non-toxic material dumps. Surveillance methods include escort or interception of dumping vessels at the dump site by vessels, observation of dumping operations by aircraft and harbor radar installations, the use of ship riders to ascertain position and dumping rate, and the spot-checking of ships' logs. From April 1973 to March 1974, there were 422 ocean disposal surveillance missions; 31 apparent violations were referred to EPA. These were all investigated; four could not be resolved and formal enforcement actions were instituted.

All four of these enforcement actions were initiated in the New York region for the assessment of civil penalties as provided for by Section 105(a) of the Act. The alleged violations ranged from a failure to submit a plan for the segregation of industrial and municipal wastes and the dumping of material without a permit to short dumping--failure to dispose of material in the designated dump site.

In the first two notices of violation issued, a penalty amount was proposed in an attempt to reflect the seriousness of the violation. However, experience has indicated that this procedure is restrictive and the proposal of actual dollar amounts has been omitted from the most recent notices. As of June 30, 1974, no penalties had actually been assessed; the most advanced proceeding was awaiting the findings of fact and recommendation of the hearing officer. In each case, within the notice of violation, allegations have been discussed with the alleged violator and possible settlement prior to the hearing has been unsuccessfully invited.

VI. SOME ADDITIONAL PLANS FOR EPA PROGRAMS PURSUANT
TO TITLE I, THE MARINE PROTECTION, RESEARCH, AND
SANCTUARIES ACT AS AMENDED

The outlook for EPA programs in response to Title I, of the Act rests on the degree of success of three on-going program components: 1) the knowledge of present conditions gained from baseline surveys, 2) the research program in identification of specific effects of certain pollutants, and 3) continuing development of methods of sampling and laboratory analysis specific to the marine environment.

The baseline surveys will identify the normal biota and food chain mechanisms in prospective dumping site areas and allow investigations of the effects on species normal to the area of wastes to be dumped. The surveys will also allow closer determination of the direction and certification of movement and ultimate rate of waste dumped.

Some preliminary literature searches indicate that certain substances harmful to freshwater biota may actually be helpful to marine species, particularly in deep water "desert" areas. This aspect of identification of specific effects of certain pollutants will be investigated along with testing of substances known to be harmful. If proven correct, EPA will encourage the dumping of such materials into the ocean rather than allowing disposal to surface waters which may be adversely affected, or to land or deep wells where future water supply may be impacted.

Further development of sampling and laboratory analysis techniques is probably the most immediate need in determination of the effects of ocean dumping. Many pollutant-related methodologies are borrowed from freshwater techniques which may or may not be directly applicable to wastes mixed with waters naturally containing high concentrations (some 35 parts per thousand) of dissolved salts, metals, and other materials. Although a number of techniques presently in use allow for analytical interference by such substances, many others must be adapted or completely changed to be useful.

Another sphere of investigation which lies somewhat further in the future is that into possible synergism (i.e., when a combination of two or more substances results in an increase in toxicity or other effects) and antagonism (i.e., when a combination of two or more substances results in a decrease in toxicity or other effects) of pollutants with natural ocean waters.

NOAA and EPA have cooperated on one site survey and NOAA is planning to absorb a large amount of the baseline survey activity, beginning in FY '76. NOAA has also reoriented its program on Marine Eco-System Analysis (MESA) in the New York Bight area to concentrate on ocean dumping problems.

APPENDIX 1

SIMILARITIES AND DIFFERENCES IN A COMPARISON OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT, AS AMENDED, ("MPRSA") AND THE FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED ("FWPCA")

Geographical Coverage

Section 403(a) of FWPCA states that no permit for a discharge into the territorial sea, the waters of the contiguous zone, or the oceans shall be issued unless in compliance with guidelines established under Section 403(c).

"Oceans," as defined in Section 502(10) of FWPCA means any portion of the high seas beyond the contiguous zone.

MPRSA, Section 3(b), defines "ocean waters" as those waters of the open seas lying seaward of the base line from which the territorial sea is measured, as provided for in the Convention on the Territorial Sea and the Contiguous Zone.

Sections 502(8) and (9) of FWPCA define "territorial sea" and "contiguous zone" in a manner consistent with the Convention on the Territorial Sea and the Contiguous Zone.

Therefore, the criteria established under MPRSA and those required under Section 403(c) of FWPCA cover the same geographical area: all open waters outside the baseline from which the territorial sea is measured not including such areas as Puget Sound, San Francisco Bay, Galveston Bay, Tampa Bay, Chesapeake Bay, Delaware Bay, and Long Island Sound, for example.

Where any question arises, the official U.S. designation of the territorial sea given on charts supplied by the Geographer of the State Department is used.